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PULP & PAPER

March 1986

STOCK PREP/RECYCLING:
NEW STRATEGIES FOR UPDATING THE PROCESSES

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Operator adjusts paperstock cleaners at Consolidated Papers' Stevens Point Div. mill. **(Photo by Burk Uzzle, Philadelphia, Pa., courtesy of Consolidated Papers Inc.)**

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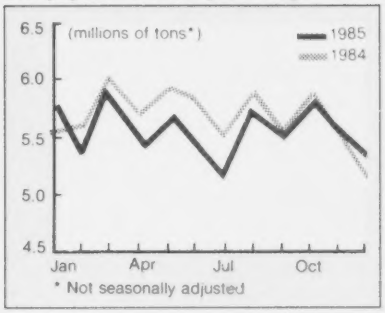
U.S. paper and board production



U.S. production of paper and paperboard totaled 5.4 million tons in December 1985, up a sharp 4.3% from the previous year, the American Paper Institute said. The strong December performance pushed production for the year to 67.2 million tons, only 1.8% below the record 1984 total, and promised a strong start for 1986. Paperboard production totaled 33.2 million tons for the year, off 2.5% from 1984 because of weaker linerboard exports. Paper production totaled 34.0 million tons, down 1.2% due to weaker demand in most segments.

Among major grades, uncoated freesheet finished the year strongly, but tissue and recycled paperboard were the only other grades above their 1984 levels. Coated and packaging papers were weakest. Corrugated box shipments dropped 1.3% in 1985, while containerboard inventories on Dec. 1 were down another 5.1%. Kraft linerboard production for export continued to strengthen in December but was still down 15.9% for the year.

Canadian newsprint shipments finished the year at 9.0 million tons, down 0.3% from 1984. December operating rates slipped to 87%. Pulp shipments totaled 7.0 million tons, up 4.6%, with operating rates dropping to 79% in December. ■

	Latest month (000 short tons)		% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	Dec.	437	1.9	5427	−2.0
Uncoated groundwood (s)	Dec.	117	1.7	1502	−4.0
Coated paper (s)	Dec.	446	−10.4	5861	−6.2
Uncoated free sheet (s)	Dec.	799	15.0	9722	5.6
Other printing/writing	Dec.	111	0.9	1342	−8.1
Total packaging and other paper (s)	Dec.	410	6.2	5210	−6.2
Tissue	Dec.	402	−4.3	4941	0.4
Total paper	**Dec.**	**2721**	**2.6**	**34004**	**−1.2**
Unbleached kraft paperboard	Dec.	1315	6.8	16433	−4.3
Semichemical medium	Dec.	414	5.6	5084	−1.6
Bleached paperboard	Dec.	330	8.2	3972	−1.9
Recycled paperboard	Dec.	598	4.0	7701	0.8
Total paperboard	**Dec.**	**2656**	**6.1**	**33190**	**−2.5**
Total U.S. paper and paperboard output	**Dec.**	**5377**	**4.3**	**67195**	**−1.8**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	Nov.	4521	0.4	54260	−2.9
Market pulp production	Nov.	585	1.0	6823	−1.4
Wastepaper consumption at paper/board mills	Nov.	1287	−1.8	15269	−3.5
Pulpwood consumption (cords)	Nov.	7112	−.6	86004	−2.4
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	Dec.	17.217	−11.7	264.100[6]	−1.3
Containerboard inventories at U.S. box plants and mills	Dec. 1	2469	−5.1		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	Nov.	916	0.8	11145	4.7
Imports of Canadian newsprint	Nov.	668	2.9	8130[6]	5.6
U.S. paper exports (including products)	Nov.	323	8.0	4011	−8.3
Exports of unbleached kraft linerboard	Dec.	156	23.8	1756	−15.9
Exports of woodpulp	Nov.	363	32.5	3816	6.6
Norscan pulp inventories[4]	Dec. 31	1298	−20.3		
Norscan pulp operating rates[4]	Dec.	75%	92%	86%	91%
CANADIAN STATISTICS[5] *(reported in metric tons)*					
Total newsprint shipments	Dec.	781	1.2	8992[6]	−.3
Operating rates	Dec.	87%	92%	92%	92%
Inventories held by U.S. consumers	Dec. 31	1378	2.7		
Other paper/board shipments	Dec.	237	7.7	3055	10.8
Woodpulp shipments (export only)	Dec.	629	6.6	7009[6]	4.6
Operating rates	Dec.	79%	82%	87%	87%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

COATED FREE-SHEET: Modest growth seen

Grade structure: The coated free-sheet group consists of papers made from no more than 10% groundwood pulp; the balance is chemical pulp. Coated Nos. 1 and 2, at the top of the quality range, have no groundwood content at all, while Nos. 3 and 4 may contain none, or small amounts only. About half of the No. 4 group, however, is excluded from the free-sheet category because of groundwood pulp content.

Basis weights for Nos. 1 and 2 are generally between 60 lb and 100 lb, while Nos. 3 and 4 are generally in the 45-to-90-lb area. Most coated free-sheet is used by commercial printers. The largest end uses are annual reports, catalogs, and other advertising and promotional materials. However, there are a few other important purchaser groups: about 10% of No. 3 goes to magazines.

Coated paper comes in glossy, dull, matte, and embossed finishes. Measurements of these finishes (Gardner gloss meter) are 45 or more for glossy, as low as 25 for dull, and 20 or below for matte.

One survey in the early 1980s estimated that about 65% of all No. 1 was glossy and 35% was dull, with a very small share for matte and embossed. For No. 2, about 80% was glossy and 16% was dull. For No. 3, it was 63% glossy, 3% dull, and 33% matte. Embossed represents less than 2% of any grade. Most of the 385,000 tpy of coated one-side paper (C1S) is free-sheet.

Production/capacity: Output of U.S. mills dropped in 1985, led by a fairly considerable decline in the No. 3 area. This was in marked contrast to the previous year, when production jumped at a double-digit pace. With capacity rising by only about 0.9% in 1985, the operating rate for the year remained at a fairly healthy 92.0% despite the drop in production.

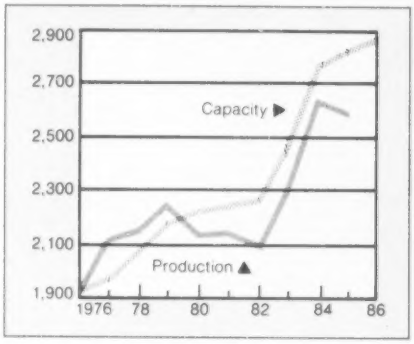
Westvaco Corp. was scheduled to add about 30,000 tons of capacity at Luke, Md., in 1985, and again in 1986, as part of an ongoing program to increase capacity by about 150,000 tons by 1989. The big news this year will be the startup by year-end of a new 215,000-tpy machine at Scott Paper Co.'s Hinckley, Maine, mill.

Outlook: Coated free-sheet mills were enjoying their usual good first quarter, pushed along mainly by annual report printing, but their business has suffered in recent months from the same customer inventory reduction that has troubled coated groundwood producers. This was expected to run its course by the end of the first period, setting the stage for slow but steady demand growth through the end of the year. This will be helped by anticipated strength in catalogs and in other retail-oriented printing during the second half.

Prices: Moderate discounts began to appear during the second half of last year, mainly in the No. 3 coated area. Inexpensive imports did appear in the higher grades, but that did not seem to undermine domestic mills' price structures. List prices last rose during the fourth quarter of 1984 but show no signs of increasing in 1986. Typical pricing trends ($/short ton, average price for year) are as follows for 70-lb No. 1 sheets: 1978, $880; 1979, $939; 1980, $1,021; 1981, $1,096; 1982, $1,148; 1983, $1,213; 1984, $1,321; 1985, $1,375. For 60-lb No. 3 rolls: 1978, $621; 1979, $690; 1980, $750; 1981, $798; 1982, $798; 1983, $830; 1984, $919; 1985, $980.

Markets: Most production of coated two-side (C2S) paper is shipped to commercial printers while C1S is generally used for label conversion. Percentages of C2S shipped to commercial printers, by grade, are estimated to be: No. 1, 98%; No. 2, 93%; and No. 3, 76%. ■

SUPPLY/DEMAND (000 tons)



FORECAST (000 tons)

	1984	1985	1986e
Production[1]	2,607	2,590	2,688
Capacity[2]	2,791	2,815	2,868
Utilization rate	93.4%	92.0%	93.7%
Imports	86	103	100
Exports	41	39	41
Apparent U.S. consumption	2,652	2,654	2,747
lb/capita	22.52	22.32	22.88
GNP ratio	1.62	1.58	1.59

e = Estimate.
1. *P&P* estimate.
2. API capacity survey.

TOP U.S. PRODUCERS (000 tpy)

	Annual capacity	Market share (%)
1. Scott Paper[1]	525	18.3
2. Westvaco	470	16.4
3. Mead Corp.	377	13.1
4. Champion Intl.	365	12.7
5. Consolidated	205	7.1
6. Potlatch[2]	170	5.9
7. Midtec	150	5.2
8. Newton Falls	100	3.5
9. Simpson	90	3.1
10. Boise Cascade	72	2.5

Market share of top five companies:
67.7%

Market share of top ten companies:
88.0%

Total U.S. capacity (1986):
2.868 million short tons

1. S.D. Warren Div.
2. Northwest Div.

CONVERTED PRODUCTS

3M files suit against Ampad over sticky notepads

3M Co., whose Post-it notepads have dominated the $200-million U.S. market for self-adhesive notes, filed suit last December against Ampad Corp. of Holyoke, Mass., with the allegation that Ampad's Clingers notepads use technology on which 3M owns a patent. In a local newspaper report, an Ampad spokesman said, "We feel very strongly that we have not violated any patent laws and are prepared to prove it to them."

Since introduction of the Clingers pads in April 1985, the product has been responsible for a growing portion of overall company sales, said an Ampad spokesman. Avery International and Rediform also self-adhesive notepads, but 3M is considered the major competitor. ■

P&G is taking Ultra Pampers nationwide this year

Procter & Gamble plans a nationwide rollout this year of its Ultra Pampers disposable baby diaper containing superabsorbents. The diaper was test marketed last year in five midwestern states following its initial introduction in Wichita, Kans., in late 1984 (*P&P*, Jan. 1985, p. 33).

That will add a third national brand to P&G's line, which now includes New Pampers and a redesigned Luvs diaper. All three diapers will sell for about the same price.

Both versions of Pampers can be made on high-speed equipment that P&G installed last year as part of a $500-million program to reverse its declining market share. New Pampers, featuring a waist shield and extra fluff pulp, came on the market in early 1985.

Ultra Pampers has a superabsorbent core which can reportedly absorb 70 to 80 times its own weight. The estimated 3 to 5 g of polyacrylate powder in the diaper permits a decreased use of fluff pulp, which in the initial P&G prototype diaper is reduced by some 20 g/unit, according to *Nonwovens Markets* newsletter.

If the new, thinner diaper catches on with consumers, the growth rate for fluff pulp consumption could be reduced. So far, however, Kimberly-Clark Corp., the second-largest U.S. diaper manufacturer, has not even test marketed a superabsorbent baby diaper, although K-C has used the material in other products.

"Kimberly-Clark made the decision that superabsorbents in baby diapers would be an evolutionary, rather than a revolutionary, proposition," remarked Bruce Kirk of Goldman, Sachs & Co.

Rather, the company has been introducing an "extra absorbent" Huggies diaper which features increased use of fluff pulp and an elastic waist band. The company hopes to start producing the new version of its diaper by this month. ■

Scoreboard of ongoing battle for the disposable diaper market.

	Procter & Gamble			Kimberly-Clark	Others & private label
	Total	Pampers	Luvs		
1980	70%	59%	11%	9%	21%
1981	69	52	17	12	19
1982	66	48	18	12	22
1983	60	42	18	19	21
1984	54	34	20	25	21
1985e	47	28	18	33	21
1986e	47	30	17	33	20
1987e	45	30	15	35	20

e = Estimate.
Source: Goldman, Sachs & Co.

NEWSPRINT

K-C to rebuild newsprint machine at Coosa Pines

Kimberly-Clark Corp. is spending almost $17 million on modernization projects at its Coosa Pines, Ala., mill, including a rebuild of No. 3 machine and installation of a computerized roll management system.

Startup following the completed rebuild is scheduled for sometime in early 1987, with the major phases of the installation occurring during the holiday maintenance shutdown in December.

A company official said that engineering work is now underway for a wet end rebuild and installation of a top-wire former on No. 3 paper machine. The rebuild includes installation of a hydraulic headbox in order to improve sheet formation and basis weight uniformity. Sanford B. Pinkerton, president, U.S. pulp and newsprint, said that the project will also include a manual off-machine slice control, deaeration system, and five-stage stock cleaning system.

"Many of our customers have converted to offset or are in the process of converting from letterpress to offset, increasing their need for paper with improved printing characteristics and strength," Pinkerton noted. He explained that the proposed expansion project is part of K-C's plans to "keep pace with the changing requirements of the industry."

Market sources report that the company is also planning on installing a top-former on machine No. 4 in the near future. Both of the units are 336-in.-wide machines with capacity rated at approximately 120,000 metric tpy; both machines were installed in the late 1960s. ■

Planning moves ahead on Richmond newsprint mill

Planning for a possible 160,000-metric-tpy recycled newsprint mill to be built in the San Francisco Bay Area community of Richmond, Calif., is moving ahead, city officials report. A feasibility study of the $186-million

Recycling chemical use determined by equipment, market

Consumption. The overall demand for chemicals used to process wastepaper did not vary much between 1984 and 1985, due to the improved availability of higher quality wastepaper and a flat production year for deinked pulp and paper. The price of market pulp (which will remain low in the first quarter of 1986) and lower utilization rates in U.S. mills caused by an increase in imports are the major factors affecting domestic wastepaper consumption, which was off about 5%. Exports in 1985 held on and equaled those in 1984, thanks to a strong push in the last two quarters. Domestic demand and chemical use in 1986 should remain stable as the factors mentioned above improve, assisted by three new deinking operations and expansions at two others (totaling more than 500 tpd). Also, two other wastepaper plants opening in the U.S. will be adding close to 200,000 tpy.

The chief chemicals used in wastepaper processing appear in Table 1. Most wastepaper users do not use elaborate chemical inputs, especially when the color of the end product is insignificant. However, many users apply small amounts of caustic and detergents for alkalinity and dirt removal. For deinking, chemical application is becoming more important for quality-conscious manufacturers. Hydrogen peroxide, for example, is becoming a more popular additive to pulpers, particularly when paper containing mechanical pulp is the raw material. Peroxide attacks the ink binder and assists in making the binder water soluble. Teaming with peroxide in many systems are silicates, used for peroxide stabilization and curtailing brightness reversion. These two chemicals prevent darkening and yellowing of mechanical pulp in the furnish and help to whiten pulp by three to eight points.

Efficiency of ink removal is also increased, reducing cooking times (and steam costs) and pushing up capacity. Silicates have been said to cause scaling problems, but supplier research has shown that this is not true in most cases. Surfactants have grown in use to avoid "stickies" and to control pitch, charge aversion, and water hardness. As reported last year, dealers of surfactants, deformers, and detergents are supplying mills with computerized formula (using mill equipment, wastepaper grade input, and end product data) that apply to individual needs. Equipment manufacturers are also recommending certain formulas to aid in production when operating with their deinking systems.

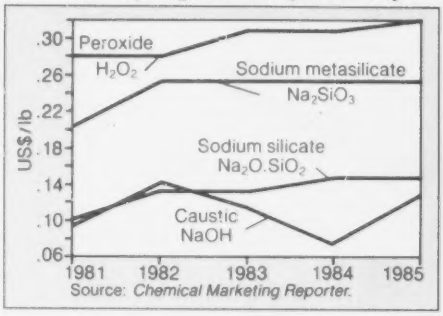
Price. There will be an ample supply of chemicals for wastepaper processing during the coming year, and the cost of the chemicals does not appear to be moving upward. A possible exception may perhaps occur with regard to caustic, since the chloralkali market as a whole improved at the end of 1985 with a price increase for chlorine, coupled with improving housing starts, car production, and other factors that influence demand. Should those favorable economic conditions be realized during the first quarter, prices for caustic could reach or perhaps surpass 1982 levels.

Peroxide has had moderate price boosts throughout the 1980s (Figure 1), which will probably continue until new capacity reaches the market in the latter part of the decade. A major silicates supplier mentioned that its customers could see prices increase with inflation, but no considerable jumps are seen for 1986. Surfactant costs vary with supplier and formula, and incremental price increases are expected during the year. It should be noted that severe discounting occurred last year in all facets of the paper industry (chemical purchases included), and if the same economic conditions prevail this year (strong U.S. dollar, etc.), discounting could make list prices quoted here meaningless. ■

TABLE 1: **1985 consumption (short tons).**

	Recycling	All pulp and paper	All industry
Caustic	12,000	2,100,000	11,750,000
Silicates	11,500	13,000	750,000
Peroxides	5,100	18,000	8,700,000
Surfactants	7,050	—	—

FIGURE 1: **Recycling chemicals price history.**



Source: *Chemical Marketing Reporter.*

FIRST QUARTER SIGNALS RISING TREND IN WASTEPAPER MARKETS THIS YEAR

Dwindling supplies and rising export demand indicate strengthening secondary fiber markets—and possible price rises in second-half 1986

By DEBRA A. ADAMS, Senior News Editor

Wastepaper markets appeared to be starting a trend upward early in the first quarter of 1986, with some high- and low-grade prices moving up slightly—the first real price rises in more than a year in some areas.

Other signs also seemed to point to improving market conditions. Supplies were getting tighter in such grades as old corrugated containers, new double-lined kraft corrugated clippings, and some of the hard whites such as hard white shavings and hard white envelope cuttings. Prices in these grades rose slightly in some areas of the U.S. and appeared to be on the verge of a hike in other regions.

Export activity was also providing momentum for wastepaper markets, with offshore demand for such grades as corrugated, news, and some pulp substitutes putting a strain on dwindling domestic supplies, industry observers reported.

Overseas consumption of U.S. paperstock this year is expected to be at least as high as it was in 1985, which is projected to end at a level slightly above 1984's record of 3.235 million short tons. For the first 11 months of 1985, exports were 1.0% ahead of the same period a year earlier, according to recent U.S. Dept. of Commerce figures compiled by the National Assn. of Recycling Industries (NARI).

U.S. paperstock shipments to some of the traditionally large foreign consumers were down slightly last year, while orders to many countries with normally lower consumption levels increased substantially. The big loss was in commerce with Canada, where consumption of U.S. secondary fiber was down nearly 37% through November 1985. And according to Daniel F. O'Connor, sales manager for Wray Fibres International Inc. of Buffalo, N.Y., Canada's requirements from the U.S. are not expected to improve in 1986 due to Canada's stepped up recycling efforts.

SOME GOOD EXPORT MARKETS. In Mexico, India, People's Rep. China, and the Pacific Rim countries, however, demand is expected to remain robust in 1986 due to limited availability of recyclable paper in these markets.

Mexico, for instance, has grown to rely heavily on U.S. paperstock imports. According to the latest statistics available, Mexican consumption rose to 22% of the total secondary fiber used in that country in 1978 compared with just 8% in 1975, according to Martin A. Cordoves of Western Pulp & Paper Inc.

Within the U.S., however, wastepaper consumption has not grown as markedly. The utilization rate—the ratio of recyclable paper consumption to total production of paper and board—has remained at about 23% for more than a decade. During the first ten months of 1985, total wastepaper used in domestic mills was running at an annual rate of 15.223 million tons—down nearly 4% from a year earlier.

U.S. mill demand for secondary fiber is expected to be higher this year than it was in 1985 due to a better outlook for the paper industry in general. Overall production, operating rates, and profits are expected to rise notably this year.

Interest rates are projected to stay low and possibly decline further, resulting in a hike in activity in the construction and automobile industries. Both industries consume a substantial amount of paper and paperboard as well as related products that use wastepaper in their fiber furnishes.

In addition to this general improvement, new secondary fiber facilities started up in 1985 and expected to come online this year will also absorb wastepaper. These include Inland Container Corp.'s 175,000-tpy recycled linerboard mill in Ontario, Calif., which started up late last year. Fort Howard Paper Co. and Laurel Hill Paper Co. have brought online deinking facilities for new tissue mills in the past year, and Fort Howard plans future additions.

Virgin pulp markets, however, will have to improve before wastepaper can rebound. With pulp in significant oversupply throughout the world and prices depressed through much of 1985, it may take some time for those markets to recover. Until they do, secondary fiber will find stiff competition.

TABLE 1: **U.S. wastepaper prices, 1985 ($/short ton, f.o.b. seller's dock).**

Grade	First quarter	Second quarter	Third quarter	Fourth quarter	Full Year	% change from 1984
News (6)	$ 41.82	$ 45.00	$ 30.21	$ 29.79	$ 36.70	−26.9%
Corrugated containers (11)	37.34	48.75	31.25	31.66	37.25	−34.5
New double-lined kraft corrugated clippings (13)	77.97	78.75	55.36	52.29	66.09	−22.6
Hard white shavings (30)	224.37	204.06	141.56	168.33	184.58	−22.3
Computer printout (42)	204.06	202.50	141.67	142.29	172.63	−10.3
Manifold white ledger (41)	141.56	145.50	104.38	97.08	122.13	−12.1
Manifold color ledger (39)	112.81	117.50	81.88	75.62	96.95	−16.2

Numbers after each grade correspond to definitions in the current Paper Stock Institute of America Standards & Practices Circular (PS-83). These are paper and board mill purchase prices, f.o.b. seller's dock, exclusive of delivery charges and represent contract rather than spot or premium sales. Prices may not reflect actual transactions but represent estimates of current market conditions as obtained from representative sources.

Source: *Pulp & Paper Week.*

MARKET WILL DETERMINE PRICES. Low paperstock prices are expected to persist through at least the first half of the year, but they should improve steadily through the second half, with some upward movement possible earlier if the primary paper industry rebounds more rapidly.

If mill demand picks up quickly, prices could rise sharply in a short time because supplies were already low in some grades early in the first quarter. One observer expects that old corrugated containers could be selling at $50/ton, f.o.b. seller's dock even in some of the more depressed regions by June.

Domestic prices in most paperstock grades were still low in many regions in January as the primary mills resumed operations following their usual year-end maintenance and holiday shutdowns. During the last quarter of 1985, prices were off by more than 20% for most low grades and were off more than 10% in many of the high grades compared with a year earlier, when prices began to decline.

The exception was computer printout (CPO), which is traditionally a popular export item. CPO prices were actually up in some areas from the fourth quarter of 1984. Although exports remained relatively active in 1985, and CPO prices were fairly stable, other grades in demand overseas suffered price erosion—in some cases quite substantially.

According to NARI figures, old news prices to Taiwan and South Korea were down 21% in August 1985 from their levels a year earlier. To Mexico, news prices were down 32%. Pulp substitutes prices had also declined sharply, dropping 27% to Taiwan and 35% to South Korea. Nearly every other category was also down, but not by as much.

GOOD LONG-TERM OUTLOOK. Long-term projections call for U.S. paperstock markets to improve as overseas countries' demand for secondary fiber increases. This will put more pressure on U.S. supplies, causing the market to tighten and prices to rise. Old corrugated containers will be one of the major grades affected, according to J. Rodney Edwards, American Paper Institute vice president, paperboard.

In addition, the increase in waste-to-energy plants being constructed in the U.S. will raise demand for U.S. paperstock supplies. NARI as well as other groups and individuals have for the past several years been actively fighting flow control ordinances. Passed in some municipalities, these laws govern the control of the waste stream to ensure adequate supplies to these garbage-consuming facilities.

These factors at play in the marketplace should result in higher prices and tighter supplies of at least some grades of paperstock beginning later in the year. Other variables also could cause stronger markets, such as the use of various contaminants in secondary fiber supplies that are making some grades less feasible to recycle. Laser printing, for instance, has eliminated a substantial amount of computer printout for recycling, and it is forecast that this will result in mills switching to other grades such as hard white shavings, hard white envelope cuttings, and ledgers, in time. ■

TABLE 2: **U.S. wastepaper exports to major consuming countries, January to November 1985 vs 1984 (short tons).**

Country	Jan.–Nov. 1985	Jan.–Nov. 1984	% change
Canada	193,507	305,633	−36.7%
Mexico	416,567	451,213	−7.7
Italy	153,483	54,833	179.9
Spain	131,179	83,597	56.9
Japan	277,970	281,355	−1.2
South Korea	613,376	696,766	−11.9
Taiwan	685,079	676,274	1.3
Total	**3,007,202**	**2,977,847**	**1.0**

Source: U.S. Dept. of Commerce from National Assn. of Recycling Industries.